

CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

- 1 1. (Previously presented) A method for providing film grain information comprising
2 the steps of:
3 characterizing an input image information stream in accordance with an input
4 image stream and a filtered input image stream to provide information indicative of film
5 grain within the image stream, the film grain information including at least one parameter
6 among a set of possible parameters specifying different attributes of the film grain in the
7 image stream;
8 encoding the film grain information for subsequent transmission.
- 1 2. (Previously presented) A method for providing film grain information
2 comprising the steps of:
3 characterizing an image information stream to provide information indicative of
4 film grain within the image stream, the film grain information including at least one
5 parameter among a set of possible parameters specifying different attributes of the film
6 grain in the image stream; and
7 encoding the film grain information for subsequent transmission;
8 wherein the set of parameters includes a plurality of correlation parameters and a
9 plurality of intensity-independent parameters.
- 1 3. (Original) The method according to claim 2 wherein at least one correlation
2 parameter defines a spatial correlation in a perceived pattern of film grain.
- 1 4. (Original) The method according to claim 2 wherein at least one correlation
2 parameter defines a correlation between color layers.

1 5. (Original) The method according to claim 2 wherein at least one correlation
2 parameter defines a temporal correlation resulting from previous processing the image
3 sequence.

1 6. (Original) The method according to claim 2 wherein at least one intensity-
2 independent parameters defines an aspect ratio of the film grain.

1 7. (Original) The method according to claim 1 wherein at least one parameter
2 defines intensity of a random component of the film grain.

1 8. (Original) The method according to claim 2 wherein at least one of the
2 intensity-independent parameters defines a color space and blending mode operation used
3 to merge the simulated film grain with the image.

1 9. (Original) The method according to claim 1 further comprising the step of
2 transmitting the film grain information transmitted out-of band with respected to
3 transmission of image representative information.

1 10. (Original) The method according to claim 1 further comprising the step of
2 transmitting the film grain information transmitted in band with respected to transmission
3 of image representative information.

1 11. (Original) The method in accordance with claim 2 where the set of
2 parameters are computed in accordance with a second order auto regression
3 representation of the spatial correlation and a first order regression representation of the
4 cross-color and temporal correlations.

1 12. (Original) The method according to claim 3 wherein the at least one
2 parameter describing the spatial correlation of the grain is established in accordance with
3 a spatial convolution model.

1 13. (Original) The method according to claim 3 wherein the at least one
2 parameter describing the spatial correlation of the grain is obtained from cut frequencies
3 of a filter in the Fourier domain.

1 14 (Original) The method according to claim 1 wherein the encoding step
2 comprises encoding the film grain information according to the ITU-T H.264 video
3 coding standard.

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1 15. (Previously pending) Apparatus for providing film grain, comprising:
2 first means for characterizing an input image information stream in accordance
3 with an input image stream and a filtered input image stream to provide information of
4 film grain within the image stream, the information including at least one parameter
5 among a set of possible parameters specifying different attributes of the film grain in the
6 image stream;
7 second means encoding the film grain information for subsequent transmission.

1 16. (Previously presented) Apparatus for providing film grain, comprising:
2 first means for characterizing an image information stream to provide information
3 of film grain within the image stream, the information including at least one parameter
4 among a set of possible parameters specifying different attributes of the film grain in the
5 image stream;
6 second means encoding the film grain information for subsequent transmission;
7 and
8 wherein the set of parameters includes a plurality of correlation parameters and a
9 plurality of intensity-independent parameters.

1 17. (Original) The apparatus according to claim 16 wherein at least one
2 correlation parameter defines a spatial correlation in a perceived pattern of film grain.

1 18. (Original) The apparatus according to claim 16 wherein at least one
2 correlation parameter defines a correlation between color layers.

1 19. (Original) The apparatus according to claim 16 wherein at least one
2 correlation parameter defines a temporal correlation resulting from previous processing
3 the image sequence.

1 20. (Original) The apparatus according to claim 16 wherein at least one intensity-
2 independent parameters defines an aspect ratio of the film grain.

1 21. (Original) The apparatus according to claim 15 wherein at least one parameter
2 defines intensity of a random component of the film grain.

1 22. (Original) The apparatus according to claim 16 wherein at least one of the
2 intensity-independent parameters defines a color space and blending mode operation used
3 to merge the simulated film grain with the image.

1 23. (Original) The apparatus in accordance with claim 16 wherein the first mean
2 computes the set of parameters in accordance with a second order auto regression
3 representation of the spatial correlation and a first order regression representation of the
4 cross-color and temporal correlations.

1 24. (Original) The apparatus according to claim 17 wherein the at least one
2 parameter describing the spatial correlation of the grain is established in accordance with
3 a spatial convolution model.

1 25. (Currently amended) The ~~method~~ apparatus according to claim 17 wherein the
2 at least one parameter describing the spatial correlation of the grain is obtained from cut
3 frequencies of a filter in the Fourier domain.

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1 26. (Original) The apparatus according to claim 15 wherein second means
2 encodes the film grain information according to the ITU-T H.264 video coding standard.

1 27. (New) A method for providing film grain information comprising the
2 steps of:
3 characterizing an image information stream to provide information indicative of
4 film grain within the image stream, the film grain information identifying a model
5 specifying how to simulate film grain and at least one parameter among a set of possible
6 parameters in the film grain information specifying different attributes of the film grain in
7 the image stream for use with said model; and
8 encoding the film grain information separately from encoding the image
9 information for subsequent transmission together to enable simulation of film grain in the
10 image stream upon decoding using the film grain information upon decoding.

1 28. (New) Apparatus for providing film grain, comprising:
2 first means for characterizing an image information stream prior to encoding to
3 provide information of film grain within the image stream, the information identifying a
4 model specifying how to simulate film grain and at least one parameter among a set of
5 possible parameters in the film grain information specifying different attributes of the
6 film grain in the image stream, for use with said identified model, and
7 second means encoding the film grain information separately from encoding the
8 image information for subsequent transmission together to enable simulation of film grain
9 in the image stream upon decoding using the film grain information upon decoding.